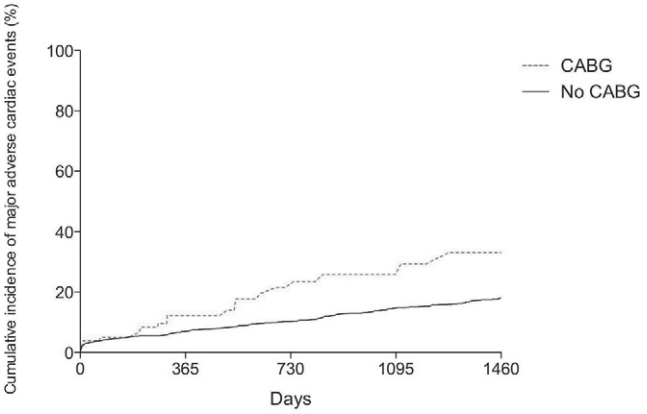
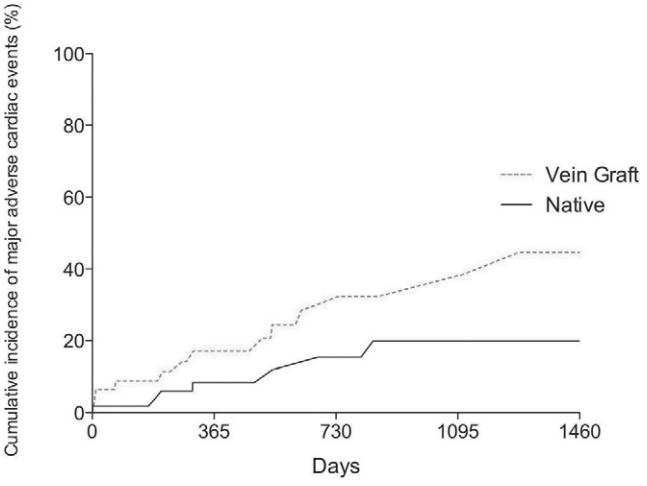
Results: CABG patients were older with higher incidence of multivessel disease. In patients with prior CABG, the IRA was split evenly between a graft (n = 50) versus a native vessel (n = 54). PCI was less successful in the prior CABG group (TIMI flow 3 end of procedure) 84.5% vs 95.6% (p < 0.0001). Prior CABG patients had increased MACE (32.8% vs 16.5%, p=0.01) over the 4-year follow-up (Fig 1). This persisted after multi-variable adjustment (HR: 2.2, 95%CI: 1.26 to 3.78, p = 0.02). Figure 2 shows worse outcomes in those undergoing PPCI to a bypass graft (44.6%) versus native vessel (19.8%, p = 0.04).





Conclusion: Prior CABG patients with STEMI treated with PPCI have higher long-term MACE. This is higher still if the IRA is a bypass graft.

TCT-353

Time-to-Treatment and Infarct Size in STEMI Patients Undergoing Primary Angioplasty

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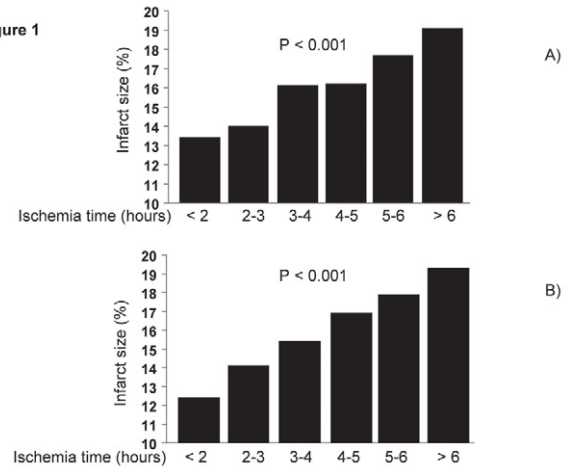
Background: Several reports have shown that in patient with ST-segment elevation acute myocardial infarction (STEMI) longer ischemia time is associated with impaired reperfusion and higher mortality. However, there is still some doubts with regards time to reperfusion role in patients treated with primary percutaneous coronary intervention (PCI). Therefore, the aim of the current study was to evaluate the impact of time-to-treatment on infarct size in a large cohort of STEMI patients undergoing primary PCI.
Methods: Our population is represented by 830 STEMI patients undergoing primary PCI. Infarct size was evaluated at 30 days by technetium-99m-sestamibi myocardial scintigraphy.
Results: Time-to-treatment was significantly associated with age and dyslipidemia. Time-to-treatment linearly affected the rate of postprocedural TIMI 3 flow (p < 0.0001) and scintigraphic infarct size (p < 0.001; Figure 1A). The impact of time-to-treatment on infarct size persisted in the analysis restricted to patients with postpocedural TIMI 3 flow (Figure 1B), and after correction for confounding factors such as age, dyslipidemia, postprocedural TIMI 3 flow (OR [95% CI] = 1.26 [1.14-1.39], p < 0.001).

Figure 1



Conclusion: This study shows in a large population of STEMI patients undergoing primary PCI that time-to-treatment is linearly associated with infarct size.

TCT-354

Impact Of Pre-Hospital Activation Strategy On Revascularization Time, Left Ventricular Ejection Fraction and Mortality In Patients With ST-Elevation Myocardial Infarction

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Background: The strategy of pre-hospital activation of cath lab services by the emergency medical system (EMS) has been increasingly adopted by many health care systems to reduce mechanical reperfusion times in patients with ST elevation myocardial infarction (STEMI). The clinical impact of this strategy however remains unclearly established.
Methods: We retrospectively identified a total of 188 STEMI patients presenting via EMS to our primary percutaneous coronary intervention capacitated facility from 2008 to 2011, and assessed the impact of the pre-hospital activation strategy (EMS; n=112) on door-to-balloon time (DTBT), left ventricular ejection fraction (LVEF), and in-hospital and 30-day mortality, when compared to conventional emergency department activation (ED; n=76). Inter-hospital transfers and walk-ins were excluded.
Results: The mean age was 65 ±15 years, and no different between both groups. EMS patients had on average significantly lower DTBT (EMS 45±11 min vs. ED 57±15 min; p < 0.001), and higher post-MI LVEF (EMS 48 ±9.5% vs ED 39±14.6%; p = 0.004). No differences in in-hospital (EMS 5.4% vs. ED 6.6%; p = 0.75), and cumulative 30-day (EMS 6.3% vs. ED 7.9%; p = 0.68) mortality were however observed. Differences in DTBT and LVEF remained unchanged after propensity-matched analysis. DTBT of <60 minutes were much more common in the EMS group (95.5% vs 64.5%; p < 0.001).
Conclusion: The pre-hospital activation strategy is largely effective and should be incorporated in the treatment scheme of STEMI patients to lower reperfusion time, increase myocardial salvage, and reduce the potential for untoward clinical outcomes.

TCT-355

Does Thrombus Extraction from IRA during Rescue PCI after Pre-Hospital Thrombolysis Improve Early and Mid-Term Follow-Up in STEMI Patients?

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Background: We assessed safety and efficacy of thrombus extraction from IRA during rescue PCI after pre-hospital TLT.
Methods: Prospective randomized study comprised 121 STEMI pts with pre-hospital TLT within the first 6 hours after the onset of AMI. Pts from Gr. 1 (n=59) had PCI with thrombus extraction from IRA, pts from Gr. 2 (n=62)–only PCI. Baseline clinical, history and angiographic data were similar in both groups. Mean interval from the onset of AMI to the start of procedure was 5,8±1,9 hrs in Gr.1 and 5,2± 1,3 hrs in Gr.2 (p>0,001). Coronary angiography showed effective TLT in 28 (47,6%) and in 34 (54,9%) pts, respectively (p>0,05). Thrombotic material was evacuated in 42 pts (69,5%) from Gr. 1. Hospital mortality was 0%. One case of subacute stent thrombosis was noted in each group. No-reflow was noted in 1 pt (5,9%) in Gr. 1 and in 3 pts (6,5%) in Gr. 2. Clinical indices and complications rate were comparable in both groups. Immediate results of PCI in 42 pts from Gr. 1 after successful thrombus

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extraction and in 79 pts after unsuccessful thrombus extraction are shown in table 1.
Results: Mid-term results (in 7,8±1,2 ms) were studied in all pts. During this period mortality was 0% in Gr. 1 and 3,2% in Gr.2 (p>0,05). Control coronary angiography was performed in 72% and 68% of pts, respectively. The rate of target vessel restenosis in Gr. 1 was somewhat lower than in Gr. 2: 9 (15,2%) vs. 13 (20,3%)(p=0,07). Significant improvement of LVEF compared to baseline was noted in both groups. However LVEF increase in Gr. 1 was greater than in Gr. 2 (p<0,01).

Effectiveness of myocardial reperfusion in the studied groups

	Group 1 (n=42)	Group 2 (n=79)	P
Blood flow: TIMI			
0-1 (%)	2 (4,8)	6 (7,6)	ns
2 (%)	8(19,0)	7 (8,9)	ns
3 (%)	32 (76,2)	66 (83,5)	ns
Blood flow: Blush grade	8 (19,0)	23 (29,1)	<0,05
0-1 (%)	16 (38,1)	31 (39,2)	ns
2 (%)	18 (42,9)	25 (31,7)	<0,05
3 (%)			
ST resolution	5 (11,9)	14 (17,7)	ns
<30% (%)	14 (33,3)	30 (37,9)	ns
30-70% (%)	23 (54,8)	35 (44,3)	<0,05
>70% (%)			

Conclusion: Thrombus extraction from IRA performed during PCI in STEMI pts after pre-hospital TLT gives better than PCI alone. It is a safe method associated with a tendency to decreased rate of target vessel restenosis and improvement of total LVEF in the mid-term follow-up.

TCT-356

Reperfusion Delay in Patients With ST-Elevation Myocardial Infarction Presenting to Hospitals Without Angioplasty Capability: Should 'Door-to-Ambulance' Time be The New Quality Parameter?

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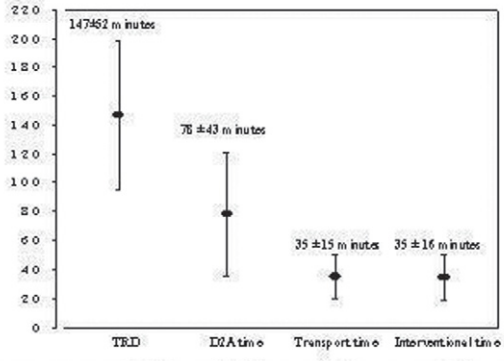
Background: The door-to-balloon time is an accepted benchmark for hospitals which provide angioplasty (PCI) for ST-elevation myocardial infarction (STEMI). No benchmark exists to assess the efficiency of initial management of STEMI patients who present to hospitals without PCI capability and require inter-hospital transfer.
Methods: In 165 STEMI patients who underwent emergent primary PCI, we compared the total reperfusion delay (TRD, initial hospital presentation to first balloon inflation) between patients presenting directly to our hospital (n=99, Direct group) and those transferred from non-PCI hospitals (n=66, Transferred group). In transferred patients, we classified TRD into 3 distinct intervals: time spent at non-PCI hospital ('door-to-ambulance' time, D2A), transport time, and time from arrival at our hospital to balloon inflation (interventional time). For each non-PCI hospital, we estimated the threshold D2A time that would allow transport and primary PCI to be accomplished in <120 minutes.
Results: TRD was higher in transfer patients (147±52 vs 75±44 min, p<0.0001). TRD components in transfer patients were as follows: D2A=78±43 min, transport time =35±15 min, interventional time =35±16 min. The greatest delay and variability were related to D2A time (see figure). The threshold D2A for the non-PCI hospitals ranged from 1-51 minutes for road transportation and 53-65 minutes for air transportation.



	TRD	D2A time	Transport time	Interventional time
Range, min	43-332	20-258	13-75	9-98
25th/75th percentile, min	116, 164	48, 93	25, 45	25, 41
Coefficient of Variation	0.355	0.553	0.438	0.464
Median Absolute Deviation	24.5	21.5	8.0	7.0
Variance	2711	1847	257	257

Conclusion: We propose a new method which enables non-PCI hospitals within a referral network to estimate the maximum D2A time that would allow transfer and primary PCI to be accomplished within 120 minutes of initial presentation.

TCT-357

Incidence and Predictors of Definite Stent Thrombosis After Primary Percutaneous Coronary Intervention for Acute Myocardial Infarction in 'Real World' Patients

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Background: In the setting of primary percutaneous coronary intervention (PPCI) for ST-segment elevation myocardial infarction (STEMI), there is still a concern regarding an increased risk of stent thrombosis, mainly due to the presence of high thrombus burden at the site of stent implantation.
Methods: Single-center retrospective study of 2018 consecutive patients who underwent PPCI for STEMI from January 2006 to May 2011.
Results: Mean age of patients was 62.38±13 years, 77% were male, 20% diabetics, 47% had hypertension, 42% hyperlipidemia and 51% current smokers. IIb/IIIa inhibitors were administered in 71% of patients. Stents were implanted in 1757 patients (87%) and a total of 2588 stents were deployed, including 1950 (75%) bare metal stents (BMS) and 638 (25%) drug-eluting stents (DES). The median follow-up was 34 months (interquartile range, 17- 49 months). Among the stented patients definite stent thrombosis occurred in 41 patients (2.3%): 8 acute events (0.5%), 22 subacute (1.2%), 5 late (0.3%), and 6 very late (0.3%). Stent thrombosis occurred in 1.6% of stents implanted (1.7% of BMS versus 1.1% of DES; p = 0.17). Age, sex and coronary risk factors were similar between both groups of patients with and without stent thrombosis. Logistic regression analysis identified as independent predictors of stent thrombosis: Killip class at admission (OR 1.514 [95% CI 1.073 - 2.136]), total number of stents deployed in infarct-related artery (OR 1.484 [95% CI 1.053 - 2.090]), left anterior descending artery (OR 2.469 [95% CI 1.201 - 5.079]), and non-use of IIb/IIIa inhibitors (OR 2.487 [95% CI 1.233 - 5.016]).
Conclusion: In our series, the rates of definite stent thrombosis were 2.3% of patients and 1.6% of stents implanted in the setting of PPCI, with a similar incidence in BMS and DES respectively. Both clinical and procedural conditions may be related to stent thrombosis.

TCT-358

Infarct Size Evaluation In Multi-device Thrombus Aspiration Study

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Background: We intend to determine whether coronary thrombectomy as an adjunct to primary percutaneous coronary intervention (PPCI) in patients with high thrombotic burden improves myocardial perfusion and reduces infarct size as assessed by magnetic resonance imaging (MRI).
Methods: In this multicenter prospective trial we randomized 202 consecutive patients with ST-elevation myocardial infarction, pain-to-balloon-time <12 hours, and angiographic evidence of high thrombotic burden (thrombus grade ≥3), to either standard PPCI (Group A) or PPCI with thrombectomy (Group B). Thrombectomy was performed in a 1:1 ratio with either the Export Aspiration catheter (Medtronic, Minneapolis, MN) or the Angiojet rheolytic thrombectomy (MEDRAD, Indianola, PA). Cardiac MRI was performed at 3 months after PPCI to assess infarct size (IS), infarct transmurality (IT), and the presence of microvascular obstruction (MVO). Patients were followed-up for 1 year. The primary end points were: IS, IT. Secondary end points were: post-procedural TIMI flow grade, ST-segment elevation resolution (STR) >70% at 60 min, presence of MVO, and MACE rate at 1 year.
Results: The 2 groups had similar baseline clinical profile, except for a longer pain-to-balloon time in Group B (237±159 vs. 265±142; p=0.02). Group B showed a significantly lower incidence of slow flow during PPCI (9.6% vs 19.4%, p=0.037) and a better STR (84.7% vs 73.3%, p=0.04). MRI was performed in 80 patients of Group A and in 86 of Group B. No statistically significant difference in IS, IT and MVO was observed between groups. Actuarial freedom from MACE at 1 year was also similar between groups. Comparison between manual and rheolytic thrombectomy showed no statistical differences in terms of IS, IT, MVO, STR; however, manual aspiration was associated with a higher rate of post-procedural TIMI blush 3 (84.3% vs 65.1%, p=0.02).
Conclusion: We failed to demonstrate a significant benefit from thrombectomy during PPCI in terms of reduction in IS and IT, even in patients with baseline high thrombotic burden. However, thrombectomy was associated with a better STR and a lower prevalence of slow flow during PPCI.

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